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10/535,570	07/06/2005	Pasi Nurminen	123760	7488

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EXAMINER	
CALANDRA, ANTHONY J	
ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/535,570	NURMINEN ET AL.	
	Examiner	Art Unit	
	ANTHONY J. CALANDRA	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Office Action

1. The communication dated 9/03/2008 has been entered and fully considered.

2. Claims 1-14 are currently pending.

Response to Arguments

3. Applicant's arguments filed 9/03/2008 have been fully considered but they are not persuasive.

Applicant states that in DORICA fibers and other substances are suspended on a sludge mat and a portion of said sludge mat is then used for the next filtering cycle with the remaining sludge mat being purged from the system and burned or discarded. Applicant argues that DORICA fails to disclose that "valuable fibers" are separated from the sludge mat or otherwise recovered from the process. And therefore argues, DORICA fails to anticipate independent claims 1 and 6.

This argument is not commensurate with the claim. Applicant claims that "*elongated fibers are separated from the filtrate* [instant claim 1 line 6-7]". Applicant therefore only claims in instant claim 1 and 6 that elongated fibers are separated from the process water. In DORICA the long fibers are separated from the process water by the sludge mat. Applicant does not claim in any way that the fibers cannot be separated by a sludge mat or that the fibers cannot be part of a sludge mat in the instant claim.

Applicant argues that a bleaching step could be between the pulping and extraction step since DORICA is silent as to whether there is a bleaching step in between pulping and the screw-

press. Applicant points to the examiners non-final rejection in which the examiner stated "DORICA does not state that said washing stage is from a bleaching stage and therefore the examiner has interpreted said stage as a brown-stock washing stage which occurs prior to bleaching" to bolster the argument.

Examiner stated this to show that there was no explicit teaching of a bleaching stage between the pulping stage and the screw press washing. For DORICA *not to* anticipate the claim a bleaching stage between pulping and the washing stage would either have to be inherent or implicit in the DORICA reference. There is no evidence that the screw press is located after a bleaching stage explicitly, implicitly, or inherently in the disclosure of DORICA.

In fact a closer reading of the document solidifies the fact that the screw-press is directly after pulping when DORICA states "effluent was obtained from hardwood pulping [column 6 lines 60-63]" and not effluent was obtained from the hardwood bleaching.

Applicant argues that the sludge press also filters out colloidal solids. This argument naturally leads to two implicit arguments, namely that colloidal solids cannot be removed in the treatment stage that removes elongated fibers and that no colloidal substances would be removed in subsequent stages.

As for the first argument applicant does not claim that substantially only elongated fibers are removed by the pre-treatment process. The applicant used the "comprising" language and as such colloidal substances can be removed by the pre-treatment process.

As for the second argument that no colloidal substances would then be removed by ultra filtration, DORICA teaches that the pretreatment only removed 85-95 % of suspended solids

[column 2 lines 30-35] therefore at least some colloidal substances are sent to the ultra filtration stage.

Applicant argues that DORICA fails to teach further treatment of disclose that the membrane filtrate concentrate is led to further treatment.

DORICA does teach the above limitation. The dissolved substances are sent to further treatment such as burning (*membrane filtration concentrate, i.e. the colloidal and dissolved substances separated from the process water, are led to further treatment* [column 2 lines 60-65]). Applicant even points to figure 5 of DORICA, which specifically shows that the concentrate (116) can be sent back to the process for recovery or disposal, both of which are types of treatments.

Claim Rejections under 103(a)

Applicant argues that DORICA fails to teach that all the claim elements of instant claims 1 and 6 and that SMOOK, KOCH, and HURTER all fail to cure this deficiency.

It is the examiners position, as argued above, that DORICA meets the limitations of the above claims as argued and as such the dependent claim rejections are still proper.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 5, 6, 8, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,290,454 DORICA et al., hereinafter DORICA, as evidenced by *KOCH Membrane Systems Website*, hereinafter KOCH.

As for claim 1, the examiner has not given the preamble to the claim patentable weight as it merely recites an intended use and purpose of the process, and the subsequent process steps are able to stand on their own. However, for the purpose of compact prosecution the examiner has shown how DORICA meets both the intended use and purpose of the process.

DORICA discloses making CTMP pulp, which is a mechanical pulp, for the purpose of removing suspended solids, colloidal material, and dissolved solids and further treating the process water for reuse in the mill (*A method in making of mechanical pulp, where the amount of organic dissolved and colloidal substances is reduced in the pulp making process water by treating a part of the process water* [abstract; column 4 lines 35-36]).

DORICA discloses the process water filtrate comes from the wood yard, pulp mill, or paper mill [abstract]. DORICA gives the example of treating effluent from waste-water from a screw press of a pulp washing stage using a drum filter to filter out suspended solids (*process water filtrate separated from the pulp to be made by a press located before bleaching, is led to pre-treatment where elongated fibres are fractionated from the process water to be treated*

[column 4 lines 46-65]). DORICA does not expressly state that said washing stage is from a bleaching stage and therefore the examiner has interpreted said stage as a brown-stock washing stage which occurs prior to bleaching. Further, DORICA states "effluent was obtained from hardwood pulping [column 6 lines 60-63]" and not effluent was obtained from the hardwood bleaching. DORICA discloses that the filtrate that passes through the pretreatment is then treated by ultra-filtration/ reverse osmosis membranes which remove contaminants from the water **(***the filtrate that has passed the pre-treatment-is led to membrane filtration where at least part of the organic dissolved and colloidal substances included in the process water are separated from the rest of the process water* [column 2 lines 58-60]). The dissolved substances are sent to further treatment such as burning (*membrane filtration concentrate, i.e. the colloidal and dissolved substances separated from the process water, are led to further treatment* [column 2 lines 60-65]). The clean water is of high quality and purity an can be recycled within the mill (*the permeate i.e. the process water that has passed the membrane filtration is led back to the pulp making process* [column 2 lines 54-55]).

As for claim 5, DORICA dissolved substances are sent to further treatment such as burning [column 2 lines 60-65]).

As for claims 6 and 8, the examiner has not given the preamble to claim 6 patentable weight as it merely recites an intended use and purpose of the process, and the subsequent process steps are able to stand on their own. However, for the purpose of compact prosecution the examiner has shown how DORICA meets both the intended use and purpose of the apparatus.

DORICA discloses making CTMP pulp, which is a mechanical pulp, for the purpose of removing suspended solids, colloidal material, and dissolved solids and further treating the process water for reuse in the mill (*an arrangement in making of mechanical pulp to reduce the amount of organic dissolved and colloidal substances in the pulp making process water by treating a part of the process water* [abstract; column 4 lines 35-36]).

DORICA discloses the use of a filter, such a rotating drum as means for separating interfering fibers from filtrate which ordinates from a screw press **(***means for leading the process water filtrate, separated from the pulp being made with a press located before bleaching, to a pre-treatment means; pre-treatment means for fractioning the elongated fibres from the process water being treated* [column 4 lines 46-65]). DORICA does not state that said washing stage is from a bleaching stage and therefore the examiner has interpreted said stage as a brown-stock washing stage which occurs prior to bleaching. DORICA discloses piping means for leading the filters filtrate from the pre-treatment to a membrane (*means for leading the filtrate, which has passed the pre-treatment means, to the membrane filtration means* [Figure 3 lines (94); column 2 lines 58-60]). The ultrafiltration membrane of DORICA is capable of separating out organic and colloidal substances to leave a purer process water **(***membrane filtration means for separating at least part of the organic dissolved and colloidal substances included in the process water from the rest of the process water* [Figure 5 ultrafiltration membrane; column 2 lines 60-65]). DORICA discloses that the colloidal and dissolved substances are lead away for burning **(***means for leading the membrane filtration concentrate i.e. colloidal and dissolved substances separated from the process water to further treatment* [Figure 5 line (116); column 2 lines 60-65]). DORICA teaches the means for leading the clean effluent back to the process (*means for*

leading the permeate i.e. the process water passed through the membrane filtration back to the pulp making process Figure 5 line (124); column 2 lines 54-55]).

As for claim 9, DORICA discloses an ultrafiltration membrane followed by a reverse osmosis membrane which is two membranes arranged in series [Figure 5 Ultrafiltration (114) and Reverse Osmosis (120)].0

6. Claims 3, 4, 11, and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent 5,290,454 DORICA et al., hereinafter DORICA, as evidenced by *KOCH Membrane Systems Website*, hereinafter KOCH.

As for claims 3, 4, 11, and 12, DORICA states that the membrane used can be an 'ultrafiltration' unit [column 2 lines 55-60]. DORICA does not explicitly state what the retention capacity of an ultrafiltration unit it. However, a person of ordinary skill in the art would recognize that an ultrafiltration membrane is defined as a membrane that removes substances with a Molecular weight size range of about 20,000 to about 100,000 g/mol as evidenced by KOCH, which falls within the claimed range with sufficient specificity to constitute anticipation under the statute [1st figure pg. 1]. Alternatively, it would have been *prima facie* obvious to a person of ordinary skill in the art to optimize the pore size of the membrane to adjust the types and percentages of solids removed to the concentrate versus the permeate.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,290,454 DORICA et al., hereinafter DORICA in view of Handbook for Pulp and Paper Technologists by SMOOK, hereinafter SMOOK.

As for claim 2, DORICA discloses that the sludge can be purged/incinerated [column 5 lines 1-5]. The limitation 'pulp making process' can be broadly read as any process in a pulp mill which helps towards the production of pulp. In the instant case the recovered sludge is sent to incineration. Waste incineration produces heat which is used to generate steam (e.g. a mill bark boiler) which is used in mechanical pulping processes such CTMP.

Alternatively, it would have been obvious to use the fiber recovered in the sludge directly in the paper making process. SMOOK discloses that in the paper making process it is typical to recover fiber back from waste water stream such as whitewater which has been filtered (just as

the effluent of DORICA has been filtered) and send said streams to the paper machine headbox [pg. 248, Figures 16-50/51/52/53]. Therefore, at the time of the invention it would have been obvious to a person of ordinary skill in the art to recover the fiber from the filter of DORICA directly to the paper making process at the headbox as taught by SMOOK. A person of ordinary skill in the art would be motivated to meet both requirements of ecology and economy by recovering the fibers and any suspended fillers [SMOOK pg. 248].

As for claim 13 and 14, DORICA discloses that contaminants removed from the effluent are incinerated [column 2 lines 60-65]]. DORICA does not disclose adding sawdust or bark to said sludge or the means for which this may be completed. SMOOK discloses that during solids handling sludge is dewatered before incineration and that bar or saw dust can be added to the sludge [g. 390 and 391, Figures 26-15/16/17]. At the time of the invention it would have been obvious to add sawdust/bark using the means disclosed by SMOOK to the sludge to be dewatered of DORICA. A person of ordinary skill in the art would be motivated by the fact that adding sawdust or bark helps act as a filter aid and as such increases dewatering capability and that dewatered pulps are easily handled and have improved heat value [pg. 390].

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,290,454 DORICA et al., hereinafter DORICA, in view of U.S. Patent 6,302,997 HURTER et al., hereinafter HURTER, or Handbook for Pulp and Paper Technologists by SMOOK, hereinafter SMOOK.

As for claim 7, DORICA discloses the use of a drum filter as an apparatus for separating fibers (suspended solids) from the filtrate that is sent to the ultrafiltration unit [Figure 5].

DORICA further states 'it should be clearly understood that various screens or belt filters can be used in place of the drum filter' [column 4 lines 57-60]. DORICA does not explicitly disclose using a pressure screen. HURTER discloses the use of a black liquor filter (which is a pressure screen) to separate out fibers from black liquor filtrate [Figure 2]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to substitute the drum filter of DORICA with the black liquor filter (pressure screen) of HURTER. It is *prima facie* obvious to substitute one known element for another known element to obtain predictable results. In the instant case a pressure screen would predictably filter out suspended solids.

Alternatively, SMOOK also discloses pressure screens as screens capable of separating out particles by size [pg. 109-110]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to substitute the drum filter of DORICA with the pressure screen of SMOOK. It is *prima facie* obvious to substitute one known element for another known element to obtain predictable results. In the instant case a pressure screen would predictable filter out suspended solids. SMOOK further passes the more stringent TSM test in that it states pressure screens have a high capacity and small space requirements compared to other screening devices [pg. 109].

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,290,454 DORICA et al., hereinafter DORICA.

As for claim 10, DORICA does not disclose that either the ultra-filtration membrane is run in parallel with another membrane. However, the duplication of parts is *prima facie* obvious unless a new and unexpected result is obtained [see e.g. 2144.04 MPEP (VI) (B)]. In the instant

case adding an additional membrane in parallel to handle additional volume of effluent is obvious in the way that adding another lane to relieve traffic is obvious. A person of ordinary skill in the art would readily be expected to add an additional membrane in parallel if the first membrane capacity has been met.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AJC/

/Eric Hug/
Primary Examiner, Art Unit 1791